Advanced Programming Features Manual Available Upon Request

CTI has added several features to the 2555-A, 2556, 2556-A, 2557 and 2557-A to allow the user to perform additional processing on board the module. This group of modules listed will be referenced as 255x series. Because PLC control systems become more complex, the need for real-time processing of analog signals is needed at the I/O level. Current implementations using the CTI 2500 Series® and Simatic® 505 PLCs utilize analog alarm blocks and/or special function programs within the controller. The 255x series of analog input modules from Control Technology Inc. can reduce the program complexity and scan time by performing this signal processing in the module. Scaling, alarming, peak/valley hold, digital filtering, and averaging are available on a per-channel basis and are selected through a simple PLC configuration routine. The 255x modules are shipped with the jumper selection in the standard 16 WX login. The user must move this jumper to select the high-density advanced function

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STATEMENT OF PRODUCT COMPATIBILITY:

The 255x 16-point I/O module is compatible with all of the CTI 2500 Series® CPUs and SIMATIC® TI PLCs except for the Model 525. The Model 525 will not support the high-density mode that is required for the advanced software functions.

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interface. When the advanced function selection is enabled, the module logs in as 16X / 16Y / 32WX / 32WY.

Overview of the Advanced Functions

Each of these functions can be selected on a per-channel basis, and each channel can have any function in any combination, e.g. alarming on a scaled value which is digitally filtered and set for peak hold.

Scaling - Each channel can be configured with low and/or high scale value. A flow meter that outputs 0mA @ 5cfm and 20mA @ 50cfm would have a low scale of 5 and a high scale of 50. An operator interface attached to the PLC could then read the analog values directly in engineering units without having to run a Special Function program to Scale the input. A standard 20% offset mode is also available for 4-20mA signals.

Alarming - Each channel can be assigned a low and/or high alarm value. No analog alarm blocks are needed in the PLC. Alarming occurs real-time as the signal is processed by the module. Two WX words are used to indicate high and low alarm conditions (bit 1 = channel 16, etc.). A third WX word is the logical OR of the high and low alarms.

Peak/valley hold - The peak or valley of a rapidly changing analog signal has been impossible to detect unless an external circuit was used. The 255x module makes possible the detection of a peak or valley and holds that value until reset by the PLC. The peak/valley measurement is available to the PLC at the same time as the currently measured analog value.

Averaging - This option is used to "clean up" a signal that is at a steady state, e.g. a sensor riding on a liquid tank with riplets. The user specifies how many signal scans to average and this value is presented to the PLC.

Digital filtering - This has the effect of a moving average operation (actually it is an Infinite Impulse Response filter), and is useful to smooth out the high frequency noise on a changing analog signal.

All of these advanced function options are designed to be stored in the PLC in a V-memory or K-memory table and downloaded to the module. The advantages of this method vs. a communications port on the module are greater flexibility, easier maintenance procedures and reduced documentation. The PLC can change any function "on the fly" if changing process conditions require it, e.g. a process needs tighter control therefore narrower alarm limits. Any replacement module can be downloaded from the PLC, which eliminates finding a cable, laptop computer and the most recent documentation.

If you are interested in using the advanced features there is a manual available upon request. There are several ways to obtain a copy:

- *Call CTI at 800-537-8398 or 865-584-0440 and ask for CTI's 255X Sixteen Channel Advanced Function Programming Reference Manual.*

- *This manual can also be downloaded from the Internet by just visiting our web site at www.controltechnology.com.*

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